

### REMARKS

5           This amendment is responsive to the office action of  
Jan 2, 2008.

          With regard to the objection of claims 75-83 for "final  
data comprising n data lanes", applicant has amended these  
claims to recite "no unsent field check sequence remains",  
10   which is a proper preamble for a conditional process step.  
Reconsideration is requested.

          With regard to the 35 USC 103(a) rejection of claim 73  
over Merchant 6,081,523 in view of Shimizu 5,293,378,  
15   applicant notes that claim 73 is directed to a  
communications interface which supports a plurality of  
different packet types, including fixed and variable length  
packets, including encapsulated Ethernet, encapsulated IP,  
encapsulated ATM, and others, thereby utilizing a header  
20   which identifies a payload type, the payload being an  
encapsulated packet with its own header and payload  
(applicant's figures 5 through 10). Amended claim 73  
recites "said interface sequentially transmitting a header  
including a packet type field describing a payload data  
25   type", whereas the header of Merchant is actually a  
preamble for synchronization which does not contain packet

type information (col 5 lines 35-39). Additionally,  
applicant's amended claim 73 recites "said field check  
sequence distributed as bytes across said n data lanes and  
an END symbol on at least one said data lane", whereas

5 Merchant describes either a CRC which appears on a single  
lane (fig3A, 3B), or a separate CRC for each data lane (col  
5 lines 39-51; col 6 lines 50-58). Shimizu transmits an  
underlying packet which is of one particular type, and does  
not encapsulate the packet - the frame of Shimizu figure 2  
10 is divided into fixed "payload" size subframes and  
successively sent four subframes at a time (figure 2). The  
system of Shimizu therefore requires the buffering of four  
complete payloads on transmit and receive so the four lanes  
can be separated at transmit or concatenated at receive,  
15 both of which require different structure than applicant's  
amended claim 73, which recites:

*"said header includes transmitting a START symbol  
on first said data lane, and the transmission of said  
payload data is followed by said field check sequence  
20 distributed as bytes across said n data lanes and an  
END symbol on at least one said data lane;*

*said payload data includes transmitting successive  
data bytes canonically across said n successive data  
lanes".*

The organization of data to be transmitted into "subframes" by Shimizu also results in the transmission of the start of frame on a next available lane, rather than the first lane, as shown in Shimizu figure 3. Merchant describes a system  
5 where the CRC is computed separately for the data transmitted on each segment (col 5 line 39-51), whereas applicant's claim 73 recites "a field check sequence computed over said payload data, concatenated to the end of said payload, and distributed across said n data lanes".

10 Applicant also notes that Shimizu attaches a "sequence number" to each of the transmitted and received frames (col 3 lines 50-60), which is required by Shimizu to preserve the order of transmission, whereas claim 73 describes the order of transmission by assignment of data lanes and transmission  
15 of start frame delimiter on the first data lane. As neither Shimizu nor Merchant anticipate a header which describes a packet type in the data field, a single field check sequence which operates over encapsulated packet data and spans all of the data lanes, the use of a single data lane for start  
20 frame delimiter, the distribution of successive data bytes of header, payload, and field check sequence on successive data lanes, applicant's amended claim 73 is allowable. Reconsideration is requested.

With regard to the 35 USC 103(a) rejection of claim 74 over Merchant in view of Shimizu, applicant notes that claim 74 is a proper dependent claim of allowable amended independent claim 73.

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With regard to the 35 USC 103(a) rejection of claim 75 over Shimizu in view of Finney 5,570,356, applicant notes that amended claim 75 recites "a first step of sending a  
10 synchronization symbol on all four said data lanes ~~for a~~  
~~synchronization interval, or~~ until said variable length  
payload is ready to be transmitted", whereas the  
synchronization symbol of Shimizu is a fixed length symbol  
sent in a time-division-multiplexed manner at regular  
15 intervals (Shimizu fig 2 & 3, col 4 lines 41-49; col 5 lines  
61-65). The use of time division multiplexing of Shimizu is  
common in connection-oriented protocols such as native ATM,  
rather than connectionless protocols such as Ethernet of the  
present invention. Applicant additionally notes that the  
20 header of amended claim 75 includes a payload type field  
which describes the type of variable length payload data,  
whereas the prior art of Shimizu and Finney do not describe  
a header which includes such payload type information.  
Additionally, the variable length payload is "described by  
25 said payload type, said payload further having an  
encapsulated header and payload" which is needed to support

the various encapsulated packet types described in applicant's figures 6-10, and not described or required by Shimizu or Finney. Reconsideration is requested.

5           With regard to the 35 USC 103(a) rejection of claims 76,78,80,82-83,86-89 over Shimizu in view of Finney, applicant notes that Shimizu and Finney do not teach an end symbol on one lane accompanied by a preamble on other lanes, as described in claims 77, 79, 81, 83. Shimizu teaches a  
10 preamble on all lanes at times when data is not being sent. Additionally, claims 76,78,80,82-83,86-89 are proper dependent claims which rely on an allowable amended independent claim.

15           With regard to the 35 USC 103(a) rejection of claim 77, 79, 81 over Shimizu in view of Finney, applicant notes that amended independent claim 75 is allowable, and claims 77, 79, 81 are proper dependant claims relying on an allowable independent claim.

20

          With regard to the 35 USC 103(a) rejection of claim 84-85, 90 over Shimizu in view of Finney and Kimmitt 6,618,395, applicant notes that these are proper dependent claims which rely on allowable independent claim 75.

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With regard to the 35 USC 102(b) rejection of claim 91 over Shimizu, applicant notes that applicant's amended claim 91 recites "sending a preamble on said first, said second, said third, and said fourth data lanes until said variable  
5 length data is ready to transmit", whereas the time division multiplexing apparatus of Shimizu separates time intervals into uniform length payloads (fig 3-4 col 4 lines 46-49, col 5 lines 61-68). Additionally, the apparatus of Shimizu requires "sequence number applied in advance to the time of  
10 transmission" (col 3 lines 50-52), which are not required in the amended claim 91, as was described for independent claims 73 and 75. Applicant has amended claim 91 to recite sending "first three successive bytes of data from said stream" and sending "subsequent four bytes of unsent data"  
15 across the data lanes during successive time sequences, in contrast to the multi-byte subframes of Shimizu which fit in ATM or other fixed subframes and result in adjacent bytes of a stream distributed adjacent to each other in Shimizu and on separate lanes of applicant's claim 91. Additionally,  
20 Finney and Shimizu do not teach "sending a start symbol on said first data lane and said first three successive bytes of data from said stream on said second, said third, and said fourth data lanes during one said time sequence", or sending an END symbol on one lane accompanied by a preamble  
25 on the other lanes - Shimizu teaches a preamble on ALL lanes

for synchronizing between frames (as does Merchant, not a reference of this rejection). Reconsideration is requested.

With regard to the 35 USC 103(a) rejection of claims  
5 92-93 over Shimizu in view of Finney, applicant notes that these are proper dependent claims of an allowable independent claim 91.

With regard to the 35 USC 103(a) rejection of claims  
10 94, 95, 96, and 98 over Shimizu in view of Finney, applicant notes that these claims rely on dependent claim 93, which relies on allowable independent claim.

With regard to the 35 USC 103(a) rejection of claim 97  
15 over Shimizu and Finney in view of Widmar, applicant notes that this claim is allowable as being proper and relying on an allowable independent claim.

With regard to the 35 USC 103(a) rejection of claims  
20 100 and 101 over Shimizu and Finney in view of Chung 5,764,895, applicant notes that these claims are allowable as being properly formed and ultimately relying on an allowable amended claim 91.

25 With regard to the 35 USC 103(a) rejection of claim 102 over Finney in view of Widmar 6,496,540, applicant has

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included a separator which performs the function of organizing the lanes of data from the header, payload and field check sequence as described previously for claim 91, and asserts the novelty of the separator limitation of claim 102. The detection of a START symbol followed by a header which includes a field for identifying a payload type and a payload identified by this type field enables decapsulation of the encapsulated packet, functionality which is not anticipated by Finney or Widmar. Reconsideration is requested.

With regard to the 35 USC 103(a) rejection of claim 103 over Finney in view of Widmar 6,496,540, applicant has amended this claim to recite the functionality of a packet generator, which organizes the data in to data lanes as described previously for claim 91 and 102. Reconsideration is requested.

With regard to the 35 USC 103(a) rejection of claims 104 over Finney, applicant has amended this claim to include the limitations of "a packet generator coupled to said elasticity buffer output data and responsive to a START delimiter on a particular one of said four streams and an END delimiter on any said stream, where said END delimiter is accompanied by preamble symbols on at least one other stream, said packet generator forming said packet including

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a header, a payload, and a field check sequence by canonically concatenating data received from a first stream, second stream, third stream, and fourth stream into said stream of 32 bits of data, said packet header containing a type field which identifies a particular type of said packet payload, said packet payload including an encapsulated header and an encapsulated payload." Applicant notes that Finney and Widmar do not teach the generation of a packet from data streams which are organized as described in the claim, and none of the references teach "an END delimiter on any said stream, where said END delimiter is accompanied by preamble symbols on at least one other stream".

Reconsideration is requested.

With regard to the 35 USC 103(a) rejection of claims 105 over Finney, applicant notes that this is a proper dependent claim which relies on an allowable independent claim.

With regard to the 35 USC 103(a) rejection of claims 106-108 over Finney in view of Shimizu, applicant notes that these are proper dependent claims which ultimately rely on an allowable independent claim.

With regard to the 35 USC 103(a) rejection of claims 109-111 over Finney in view of Kimmitt, applicant notes that

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these are proper dependent claims which rely on an allowable independent claim.

With regard to the 35 USC 103(a) rejection of  
5 claim 112 over Finney and Kimmitt, applicant has amended  
this claim to include the limitations of ***the END symbol  
accompanied by packet data in one lane and preamble in  
another***, which is not found in any of the present  
references. Additionally, applicant has amended the claim  
10 to include the limitations presented in the fourth and fifth  
process steps: "a fourth step of extracting a packet header  
including a packet type and a payload identified by said  
packet header type;

a fifth step of extracting an encapsulated header and  
15 an encapsulated packet from said payload according to said  
packet header type.", function and structure not found in  
Finney or Kimmitt. Reconsideration is requested.

With regard to the 35 USC 103(a) rejection of claims  
20 113, 114, 115, 116, 117, 118, 119, applicant notes that  
these are proper dependent claims which rely on an allowable  
amended independent claim 112.

With this amendment, this application is in condition  
25 for allowance. Examiner is advised that agent Chesavage may

be reached by telephone at 650-619-5270, or via e-mail at  
patents@chesavage.com

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Respectfully Submitted,

A handwritten signature in black ink, appearing to read 'J. Chesavage', with a stylized, cursive script.

Jay Chesavage

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